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Argus Development and Support

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LONG-TERM GOAL

The long term goal of neashore processes research has been to develop a predictive understanding of the fluid dynamics of a random wave field shoaling over the complicated bathymetry of a natural beach, and the response of the beach to those overlying wave and current motions. Traditionally, this has involved forward prediction based on models and seed data. However, it has now been broadly recognized that prediction of nonlinear systems such as the nearshore will inevitably fail at long time scales, so that knowledge of a coastal environment will depend on frequent data updates, likely acquired through innovative remote sensing techniques. The Argus Program, developed by the Coastal Imaging Lab (CIL), is one such approach (<http://cil-www.coas.oregonstate.edu:8080>).

OBJECTIVES

At the time of writing, the CIL hosted 11 active Argus Stations, spread over 5 countries in three continents. These stations are second generation, based around analog video systems hosted by an SGI Unix platform. Most stations were upgraded in the 1997-98 time frame, so are reaching five years old and beginning to show their age. In addition, the labor of maintaining and managing this world network of stations was being covered from existing grants and was beginning to represent an unmanageable load.

The objectives of this work are threefold: a) to provide replacement parts and maintenance to cover normal system attrition, b) to allow the design and testing of the third generation Argus Station based around digital firewire cameras and all-digital networks, and c) to provide some funding support for ongoing operations, partially relieving the load currently being carried by grant.

APPROACH

This work has reactive and proactive components. The reactive component involves: i) replacement of failing system components, primarily by shipping parts to colleagues and tutoring the fix by phone or email, ii) bug recovery usually associated with changes in firewalls or other aspects of site infrastructure, and iii) response to a wide range of queries and requests from collaborators. The proactive component involves the development of improvements in the system. Some of these are efforts to make Argus operations more robust and more automated and to anticipate the developing needs of the program and the user group. The other aspect is the design and testing of the third generation Argus.

WORK COMPLETED

This program is just completing its first year and much of the activity has been behind-the-scenes infrastructure support. The station at Muriwai Beach, New Zealand, has been replaced and returned to operation after more than a year of down time. The Waimea Beach station has been repaired after a set of problems. After a substantial effort, the two database approaches (mysql and matlab-based) have been integrated, with automated updates to each type. Finally, the capability now exists (and will soon be entirely implemented) for automatic backup of the daily Argus data collects to a mirror system at Stennis Space Center (Dr. Todd Holland's program).

Considerable work has now been done (in collaboration with colleagues from Europe and from Stennis Space Center) on development of the third generation Argus. Software is primarily complete, with only issues concerning unstable firewire standards still to be resolved.

IMPACT/APPLICATION

Argus has become the center of research programs over three continents. Successful ongoing operations affect a very large number of people. A new European Union program, CoastView, is based on the transition of Argus into everyday use for Coastal Zone Management (requiring continuing coordination with U.S. based Argus development). Argus Stations are used in the VISSER program, run by Dr. Todd Holland at NRL-Stennis Space Center.

TRANSITIONS

None

RELATED PROJECTS

- 1 - Joint work with Dr. Todd Holland, NRL-SSC
- 2 - Collaboration and data sharing of pixel time stack data with Dr. Jim Kaihatu or NRL-SSC
- 3 - Collaboration with Craig Cobb of the WSC at Navoceano on nearshore remote sensing
- 4 - LRS program collaboration
- 5 - EU CoastView Program (2002 - 2005)
- 6 - Numerous collaborations with the Field Research Facility

REFERENCES

None

PUBLICATIONS

None

PATENTS

None